# GUJARAT UNIVERSITY

### K. S. SCHOOL OF BUSINESS MANAGEMENT
### [Five Years' (Full-time) Integrated Degree Course]

## Semester-9 [M.Sc. (CA & IT)]

**Subject Code: - KS_C_CC - 594**
**Subject Name: Cloud Computing**
**Course Credit: - 3**

| UNIT NO. | CONTENTS | WEIGHTAGE (%) |
|---|---|---|
| 1 | **Introduction to Cloud Computing** Overview, Roots of Cloud Computing, Layers and Types of Cloud, Desired Features of a Cloud, Benefits and Disadvantages of Cloud Computing, Cloud Infrastructure Management, Infrastructure as a Service Providers, Platform as a Service Providers, Challenges and Risks | 20% |
| 2 | **Cloud Architecture, Services and Applications** Exploring the Cloud Computing Stack, Connecting to the Cloud, Infrastructure as a Service, Platform as a Service, Saas Vs. Paas, Using PaaS Application Frameworks, Software as a Service Cloud Deployment Models, Public vs Private Cloud, Cloud Solutions, Cloud ecosystem, Service management, Computing on demand, Identity as a Service, Compliance as a Service | 20% |
| 3 | **Virtualization and Abstraction** Introduction to Virtualization Technologies, Load Balancing and Virtualization, Understanding Hyper visors, Understanding Machine Imaging, Porting Applications, Virtual Machines Provisioning and Manageability, Virtual Machine Migration Services, Virtual Machine Provisioning and Migration in Action, Provisioning in the Cloud Context, Virtualization of CPU, Memory, I/O Devices, Virtual Clusters and Resource Management, Virtualization for Data Center Automation | 20% |
| 4 | **Cloud Infrastructure and Cloud Resource Management** Architectural Design of Compute and Storage Clouds, Layered Cloud Architecture Development, Design Challenges, Inter Cloud Resource Management, Resource Provisioning and Platform Deployment, Global Exchange of Cloud Resources. Administrating the Clouds, Cloud Management Products, Emerging Cloud Management Standards | 20% |

| 5 | **Cloud Security:** Security Overview, Cloud Security Challenges and Risks, Software-as-a Service Security, Cloud computing security architecture: Architectural Considerations, General Issues Securing the Cloud, Securing Data, Data Security, Application Security, Virtual Machine Security, Identity and Presence, Identity Management and Access Control, Autonomic Security Establishing Trusted Cloud computing, Secure Execution Environments and Communications, Identity Management, Access control, Autonomic Security Storage Area Networks, Disaster Recovery in Clouds | **20%** |
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**Recommended Lecture Scheme:** Approximately 40 to 45 hours in a semester

**Recommended Practical Scheme:** Not Applicable

**Assignment:** Minimum five assignments should be given.

**Reference Books:**

1. Cloud Computing Principles and Paradigms by Rajkumar Buyya Wiley India Publication 1st Edition
2. Cloud Computing Bible by Barrie Sosinsky Wiley Publication\
3. Distributed and Cloud Computing - From Parallel Processing to the Internet of Things by Kai Hwang, Geoffrey C. Fox, Jack J. Dongarra Morgan Kaufman / Elsevier Publication
4. Cloud Computing - Implementation, Management, and Security by John W. Rittinghouse & James F. Ransome CRC Press
5. Cloud Security - A Comprehensive Guide to Secure Cloud Computing by Ronald L. Krutz & Russell Dean Vines, Wiley Publication
6. Mastering Cloud Computing by Rajkumar Buyya, C. Vecchiola& S. ThamaraiSelvi, TataMcgrawHill Publication / Elsevier Publication
7. Cloud Computing: A Practical Approach Anthony T. Velte Toby J. Velte, Ph.D. Robert Elsenpeter, Tata McgrawHill publication